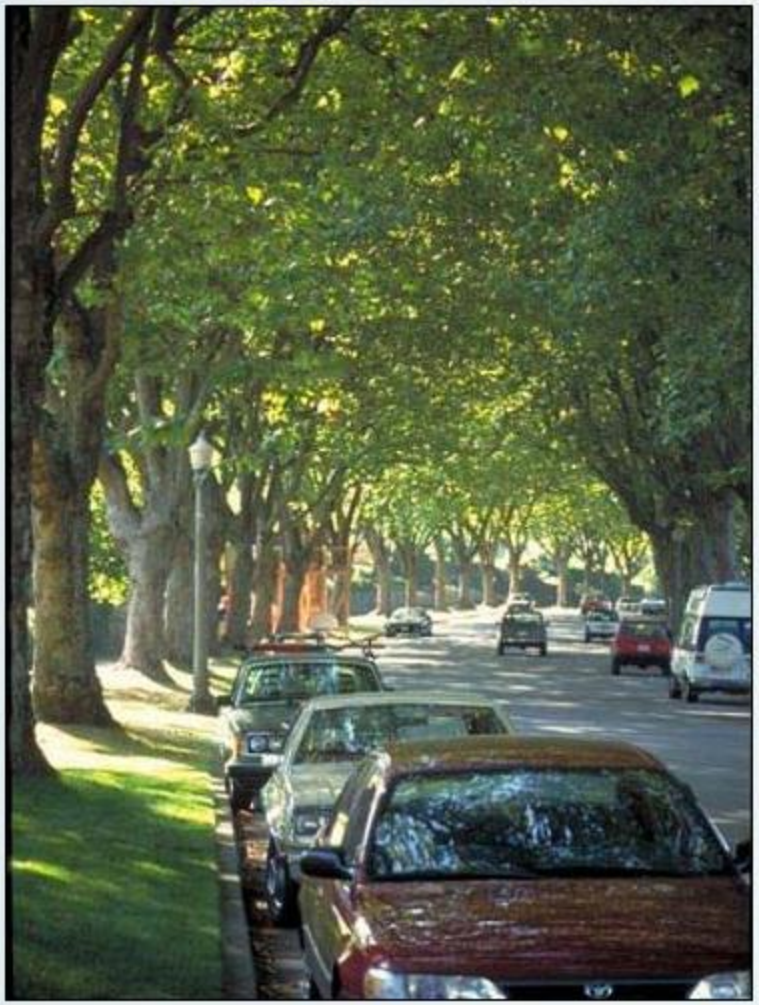
Smart Parking

Introduction and Best Practices

Smart Growth / Smart Energy Toolkit

What is Smart Parking?

A progressive approach to parking that responds to the problems of oversupply and outdated parking design.



Source: Jeffery Tumlin, Nelson Nygaard

Features of Smart Parking

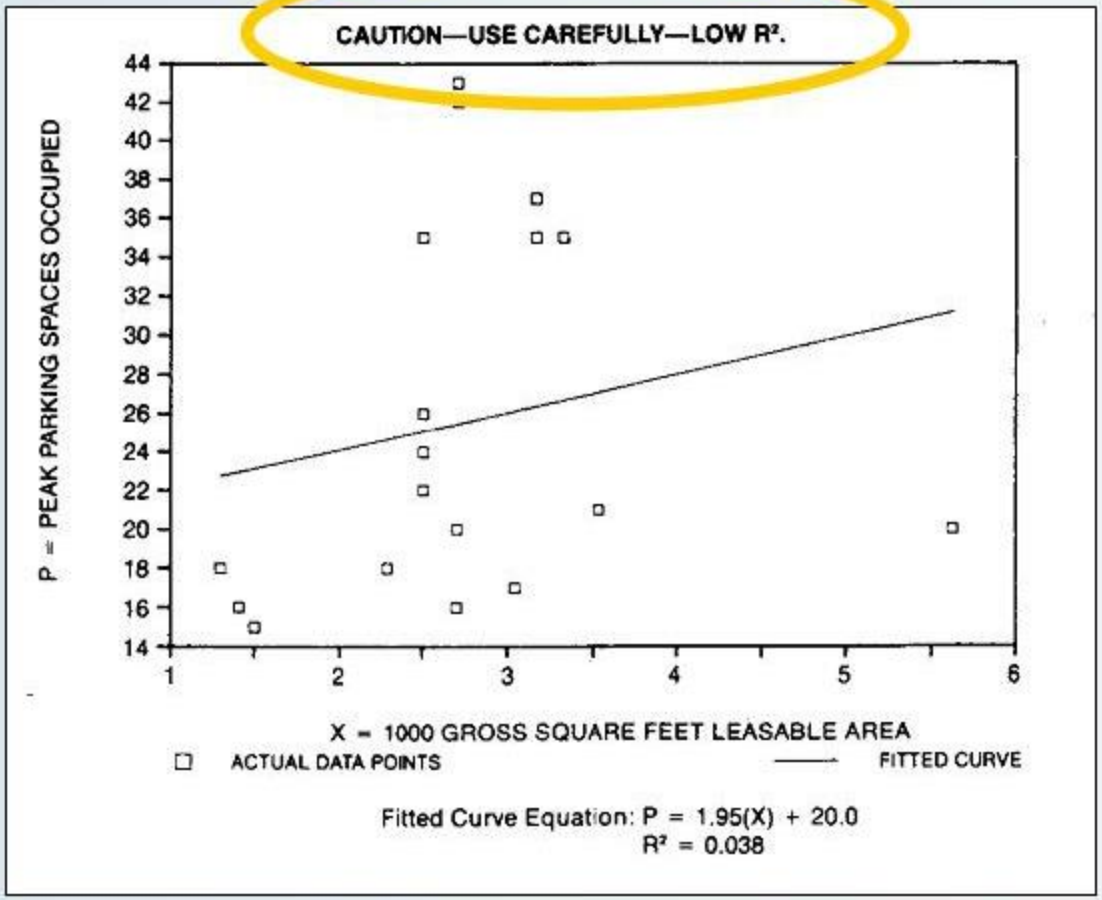
- Tailored Parking Requirements
- Shared Parking
- Demand Management
- Parking Management Districts
- "Park Once" Environments
- Parking Facility Design

The Problem

- Inflexible minimum requirements.
- Deterioration of community character.
- Loss of valuable land.
- Unwalkable environments.
- Excessive impervious surface.

Where do our parking standards come from?

- Two primary sources:
  - Nearby municipalities
  - Institute of Transportation Engineers (ITE)
- *ITE rates* are based on studies in suburban areas with high car dependency.
- *ITE studies* exhibit low statistical significance (R^2).



Reasons to Pursue Smart Parking

- Increase parking efficiency.
- Create a human-scaled environment.
- Promote alternatives to single occupancy vehicles.
- Improve stormwater management.

Source: ABL Architecture

Tailoring Requirements

- **Tailoring Minimums**
  - Increase flexibility to account for local conditions:
    - Density
    - Access to Transit
    - Demographics
    - Fees-in-lieu
    - Transportation Demand Management
- **Establishing Maximums**
  - Careful planning is needed to avoid overly restrictive regulations.

Tailoring Minimum Requirements

- **Advantages**
  - Direct method for reducing oversupply.
  - Project-to-project flexibility.
- **Disadvantages**
  - Allows developers to exceed minimums.
  - Does not constrain future demand.

Establishing Maximums

- **Advantages**
  - Guaranteed results.
  - Promotes creative solutions and use of existing parking facilities.
  - Promotes alternative transportation options.
- **Disadvantages**
  - Can be overly restrictive.
  - Perceived risk for developers and lending institutions.

Shared Parking

Reduce minimum requirements by demonstrating that different uses experience their peak parking demand at different times.

Daytime Peak Demand	Nighttime Peak Demand
Offices	Restaurants
Schools	Movie Theaters
Churches	Bars
Banks	Health Clubs
Shops	Hotels

Shared Parking

	Office Use			Retail Use			
	Minimum Parking Requirement	Percentage of Parking Requirement	**Adjusted Parking Requirement**	Minimum Parking Requirement	Percentage of Parking Requirement	**Adjusted Parking Requirement**	**Parking Requirement by Time Period**
Weekday Daytime	210	100%	**210**	500	60%	**300**	**510**
Weekday Evening	210	10%	**21**	500	90%	**450**	**471**
Weekend Daytime	210	10%	**21**	500	100%	**500**	**521**
Weekend Evening	210	5%	**10.5**	500	70%	**350**	**360.5**
Nighttime	210	5%	**10.5**	500	5%	**25**	**35.5**

Source: Montgomery County, MD

How to determine shared parking requirements:

1. **Determine minimum parking for each land separately.**
2. **Calculate the total parking required across each time period.**
3. **Set the minimum requirement at total number of spaces needed during the busiest time period.**

Demand Management

Strategies to managing parking demand:

- Investing in Transit
- Transportation Demand Management Programs
- Pricing Policies
- Support Transit-Oriented Development (TOD) and Traditional Neighborhood Design (TND)

Investing in Transit

- **High cost/high reward.**
- **Requires a larger focus then just reducing parking demand.**

Transportation Demand Management (TDM)

- Can be either publicly or privately administered.
- Goal of reducing single occupancy vehicles
- Program elements:
  - Employer subsidized transit
  - Incentives for carpooling
  - Car sharing
  - Cash-out programs
  - Peripheral parking with shuttles
  - Bicycle facilities

Pricing Policies

Source: Boston Globe

Parking is Never Free

- **Its costs can be hidden in taxes, bundled with rent or purchase prices, or through a direct charge to the user.**
- **Parking pricing and funds can be managed to achieve economic and social goals.**

Parking Management Districts

Designated areas in which parking is regulated through a variety of measures to meet the needs of the district.

Advantages

- Allows for flexibility and creative solutions.
- Can aggressively manage parking supply and allocate funds in moderate to high density mixed use districts.

Disadvantages

- Requires staff to administrate.
- Inappropriate for use at smaller scales.

Fees-in-lieu

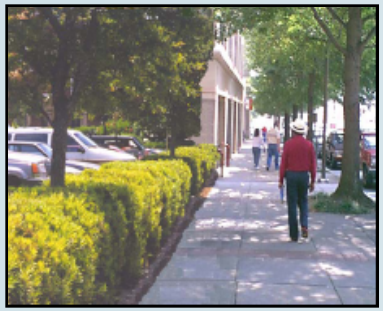
- Fees to be paid by developers in lieu of providing their own parking on-site.
- Primary funding source for Parking Management Districts.
- Allows municipalities control over parking siting and aesthetics.

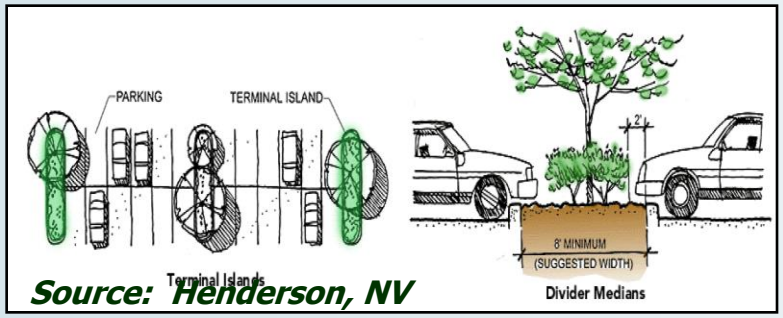
Creating a "Park Once" Environment

- Make walking an easier choice by providing centralized parking facilities.
- Most appropriate tools:
  - Increase flexibility towards on-site requirements.
  - Establish a Parking Management District with control over fees-in-lieu.
  - Shared Parking.

Parking Facility Design

1) **Ensure that vehicles are not the dominant feature.**
   - Place parking facilities to the side or in the rear of buildings.
   - Establish appropriate landscape buffer requirements for parking facilities.
   - Large expanses of parking should be broken up with landscape islands and planted dividers.
   - Establish architecture standards for structured facilities.
   - Encourage underground facilities below buildings.





Source: Henderson, NV

Parking Facility Design

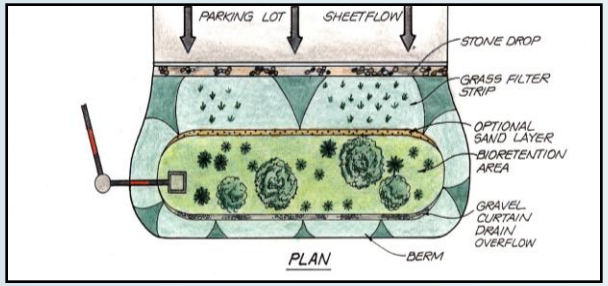
2) Minimize unnecessary impervious surface coverage.

- Maximize on-street parking in front of buildings.
- Establish provisions for compact car spaces.
- Establish provisions for parking requirements to be met with unpaved reserve parking.
- Encourage structured and automated parking.
- Create incentives for using permeable pavers.

Parking Facility Design

3) Utilize Low Impact Development techniques.

- Open sections encourage sheet flow to open channels where pollutants are removed through infiltration.
- Vegetative swales direct stormwater into shallow bioretention ponds that allow for infiltration while cleaning the water.
- Breaking parking into smaller lots facilitates more efficient management of stormwater and enhances aesthetics.

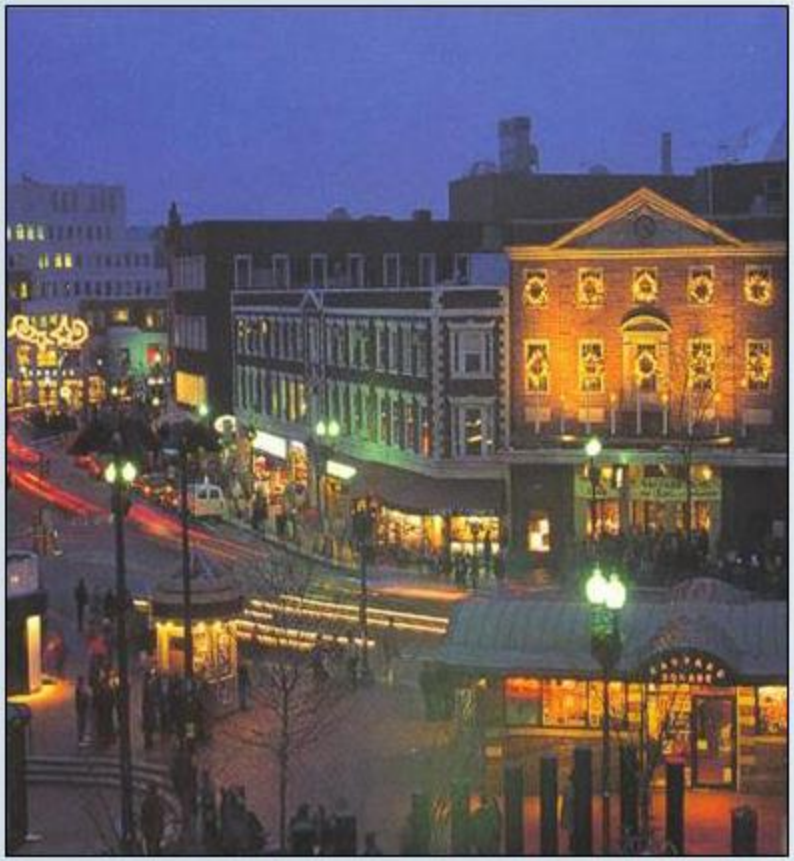


Parking Facility Design

4) Create a comfortable environment for pedestrians.

- Implement traffic calming measures in and around parking facilities.
- Limit vehicle curb cuts to reduce conflicts between pedestrians and vehicles and create more space for on-street traffic.
- Provided well marked pedestrian pathways using alternative paving.

Case Study 1: Cambridge



- Urban setting with access to transit.
- Use of Parking and Transportation Demand Management Ordinance to increase private involvement in promoting alternative transport.
- Use of Underground Parking Exemption to encourage investment in non-surface parking facilities.

Case Study 2: Marlborough

- Suburban setting within commuter-shed of Boston.
- Use of shared parking bylaw to facilitate downtown residential parking.
- Use of compact car spaces and temporary reserve parking bylaw to limit unnecessary paving.

Case Study 3: Middleborough

- Small town setting with a handful of 2-3 story commercial buildings in town center.
- Amended zoning to allow off-site residential parking within town center to facilitate use of upper-stories for housing.

Other examples of Smart Parking in Massachusetts

- **Tailored Minimum Requirements:**
  - Ayer
  - Belmont
  - Braintree
  - Gloucester
  - Ipswich
  - Newton
  - Northampton
  - Norwood
  - Salem
  - Stoneham
- **Fees-in-lieu:**
  - Arlington
  - Ashburnham
  - Northampton
  - Oak Bluffs
- **Parking Siting:**
  - Acton
  - Beverly
  - Belmont
  - Braintree

Conclusions

- Parking is a driving factor in the site design and review process, dictating the quality of our built environment.
- Providing too much parking can be just as problematic as not providing enough.
- Smart Parking reframes the issue within the context of community character and environmental health.

Don’t repeat the mistakes of the past…

Smart Parking brings your community closer to its goals.

Resources

- U.S. Environmental Protection Agency, *Parking Spaces / Community Places: Finding the Balance Through Smart Growth Solutions*, January 2006: http://www.epa.gov/smartgrowth/parking.htm
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- Maryland Governor's Office of Smart Growth, *Driving Urban Environments: Smart Growth Parking Best Practices:* http://www.contextsensitivesolutions.org/content/reading/parking_md/
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- Donald Shoup, "The Trouble With Minimum Parking Requirements", 1999: http://shoup.bol.ucla.edu/
- Fitzgerald & Halliday, Inc., *Northwest Connecticut Parking Study - Phase II: Model Zoning Regulations for Parking for Northwestern Connecticut*, September 2003: http://www.fhiplan.com/PDF/NW%20Parking%20Study/NW%20Connecticut%20Parking%20Study%20Phase%202.pdf